

## The Neuroscience of Creativity

What happens in our brains when we compose a melody, write a poem, paint a picture, or choreograph a dance sequence? How is this different from what occurs in the brain when we generate a new theory or a scientific hypothesis?

In this book, Anna Abraham reveals how the tools of neuroscience can be employed to uncover the answers to these and other vital questions. She explores the intricate workings of our creative minds to explain what happens in our brains when we operate in a creative mode versus an uncreative mode.

The vast and complex field that is the neuroscience of creativity is disentangled and described in an accessible manner, balancing what is known so far with critical issues that are as yet unresolved. Clear guidelines are also provided for researchers who pursue the big questions in their bid to discover the creative mind.

**Anna Abraham** is a Professor of Psychology at the School of Social Sciences in Leeds Beckett University, UK. She is a Fellow of the Royal Society of the Arts, the Salzburg Global Seminar, and the Higher Education Academy. She is also a Member of the International Society for Fiction and Fictionality Studies, the Association for Psychological Science, the Cognitive Neuroscience Society, and the American Psychological Association's Division 10: Society for the Psychology of Aesthetics, Creativity and the Arts. She edited the 2015 book *Madness and Creativity: Yes, No or Maybe?* and has authored numerous publications on the human imagination.

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# The Neuroscience of Creativity

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For my parents,

Shaino Abraham, the reigning world champion of steadfast  
optimism, and

George (Lalu) Abraham, the coolest cat to have walked the  
planet.

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## Preface

Our capacity to be creative is a true marvel of nature. We experience it in our daily lives in myriad forms, and we reap the joys and benefits of its fruition not only as agents but also as recipients. Creativity is often heralded as representing the epitome of uniquely developed human abilities. It is one that we lay a great deal of premium on in our daily lives across all walks of life, and it is essential to human development and progress at every level, from the individual to societal. However, the inherently abstract and intricate nature of creative thinking renders a certain mystery and ineffability to its workings.

Although relatively new to the enterprise of scientific enquiry, neuroscience as a formal discipline is one that has been witness to exponential growth in terms of research output and knowledge that benefits all domains of human perception, cognition, and behavior. Creativity is no exception to this revolutionary trend. But it is unique in that the many complexities involved in investigating this astonishingly complex human ability render the explosion of published work in relation to it extremely challenging to understand with sufficient depth.

The objective of this book is to provide a systematic overview of the neuroscience of creativity where the many disparate strands of academic theory and research in the field are integrated and summarized in an accessible manner. In other words, it is aimed to help anyone equipped with nothing but a deep interest in understanding the creative mind find their bearings. It is, in fact, the book I wish I'd had on hand when I began to investigate creativity. A Baedeker Guide to Creativity and the Brain, so to speak.

May this resource be a useful guide in your exploration of the creative mind.

## Acknowledgments

Writing this book has been a whirlwind adventure in my mind that began at a snail's pace and ended at lightning speed. I hope the book reflects both qualities: the gentle ease of a loafer and the zeal of a hyperfocused meditator, unified in the mission of making sense of the creative mind.

I have been obsessed with creativity for as long as I can remember. Many of my earliest memories are of being privy to dazzling moments on the screen, on the page, and in the air; through film, sports, music, and books. Precious moments that triggered me to action. I memorized and recited whole movies to entertain friends. Masterful sequences played back in my mind. And no one could stop me from singing. I am grateful to countless creators, artists, and performers the world over for all the magic. To be bestowed the chance to study the creative mind has been an extraordinary privilege for me, and I am indebted to an incalculable number of people who have aided me in my pursuits over the years.

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I thank the rare souls who make academic events worthwhile with their giddy enthusiasm and quirky questions, those serendipitous encounters that spark great ideas and memorable moments. In particular, I thank the engaged collective of the Neuroscience of Art Salzburg Global Seminar. I am grateful beyond measure to have been a part of that event, and I particularly cherish the curious, crazy, and comforting conversations that continued after.

I thank my friends, my family, and my friends who are family – all the wonderful souls who have supported me in numerous ways, big and small, over the many years. Too many to name but you know who you are. Thank you.

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I thank my brother, Greig, the first person I recognized as a creative soul in my life, for being so much fun to grow up with, and for the unfailing ability to make me giggle uncontrollably with a mere look, no matter what the mood.

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Above all, I thank my parents, Amma and Appa, without whose unparalleled love, absolute conviction, and enormous personal sacrifice, nothing would have been possible for me. I was blessed to bear witness to the lives of such exceptional beings whose limitless generosity, warmth, and good nature touched all who knew and know them.